INCH-POUND

MIL-W-3970/23
w/AMENDMENT 1
20 February 2004
SUPERSEDING
MIL-W-3970/23
30 August 1978

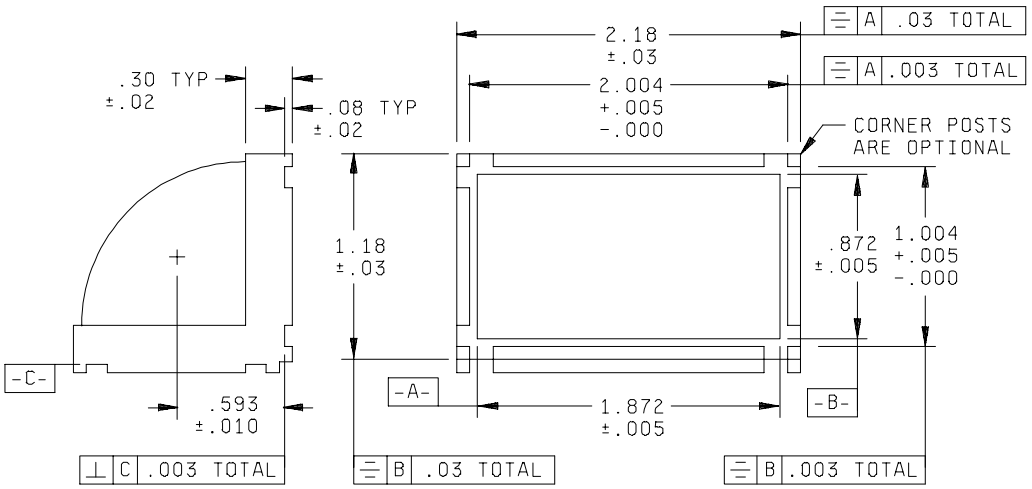
MILITARY SPECIFICATION SHEET

WAVEGUIDE ASSEMBLIES, RIGID, CAST, 90-DEGREE E-PLANE BEND, MITER AND RADIUS-BACK MITER, FULL CORRAL

This specification is approved for use by all Departments and Agencies of the Department of Defense.

THIS SPECIFICATION IS INACTIVE FOR NEW DESIGN AFTER 18 SEPTEMBER 1998.

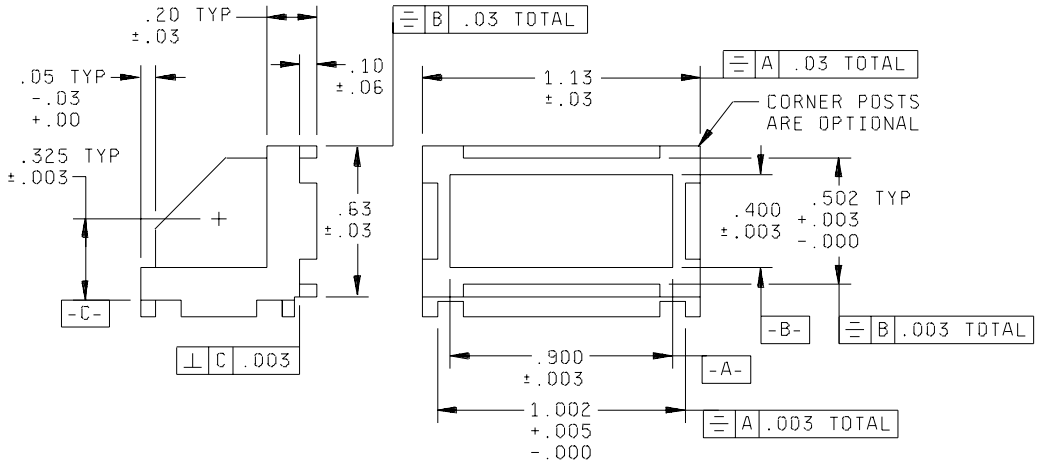
The requirements for acquiring the waveguide assemblies described herein shall consist of this document and the latest issue of MIL-DTL-3970.



Inches	mm	Inches	mm	Inches	mm
.003	.08	.08	2.0	1.18	30.0
.005	.13	.30	7.6	1.872	47.55
.010	.25	.593	15.06	2.004	50.90
.02	.5	.872	22.15	2.18	55.4
.03	.8	1.004	25.50		

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are determined from 1.00 inch = 25.4 mm.
3. Dimensions are in accordance with ASME Y14.5M.

FIGURE 1. Dimensions for radius-back miter configuration, for dash numbers 001 and 002.



Inches	mm	Inches	mm	Inches	mm
.003	.08	.06	1.5	.502	12.75
.005	.13	.10	2.5	.63	16.0
.030	.76	.20	5.1	.900	22.9
.03	.8	.325	8.26	1.002	25.45
.05	1.3	.400	10.16	1.13	28.7

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based on 1.00 inch = 25.4 mm.

FIGURE 2. Dimensions for miter configuration, for dash number 003.

TABLE 1. Dash numbers and electrical and physical characteristics.

Dash no.	Frequency range TE_{10} mode GHz	VSWR max	Peak power kW max	Average power kW max	Operating temperature range	Pressur-ization lb_f/in^2 gage	Figure	Material	Mating waveguide M85/
001	4.0 - 5.9	1.05	1/	1/	0° to +60°C	20	1	Aluminum alloy, D712.0, temper F, in accordance with ASTM-B26/B26M or C712.1 in accordance with ASTM-B179	1-053 1-054 1-174
002	4.0 - 5.9	1.05	1/	1/	0° to +60°C	20	1	Beryllium copper, alloy	1-051 1-055
003	8.2 - 12.4	1.05	250	10	-55° to +200°C	45	2	Aluminum alloy, D712.0, temper F, in accordance with ASTM-B26/B26M or C712.1 in accordance with ASTM-B179	1-077 1-078 1-178

1/ Assemblies shall have the same power handling capabilities as their mating waveguides.

REQUIREMENTS:

Physical characteristics.

Dimensions and configuration: See figures 1 and 2.

Operating temperature range: See table I.

Material: See table I.

Surfaces (sandblasting after machining permissible):

I Internal: $\sqrt{63}$ microinches in accordance with ASME - B46.1.

I External: $\sqrt{125}$ microinches in accordance with ASME - B46.1.

Fungus resistance: Materials nutrient to fungus shall not be used.

Pressurization: See table I.

Penetrant inspection. No indication of any cracks at any location when tested in accordance with ASTM-E1417, type I, method B.

Electrical characteristics:

Frequency range: See table I.

VSWR: See table I.

Power
Peak - See table I.
Average - See table I.

Part number: M3970/23- (dash number from table I).

NOTES:
Referenced documents. In addition to MIL-DTL-3970, this specification sheet references MIL-DTL-85/1, ASTM-B26/B26M, ASTM-B179, ASME-B46.1, ASME Y14.5M, and ASTM-E1417.

Changes from previous issue. The margins of this specification sheet are marked with vertical lines to indicate modifications generated by this amendment. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

Custodians:
Army - CR
Navy - EC
Air Force - 11
DLA - CC

Review activities
Army - MI
Navy - AS, CG, MC, OS
Air Force - 19

I Preparing activity:
I DLA - CC

I (Project 5985-1285)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database www.dodssp.daps.mil.